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AUTHOR Kirby, Elizabeth
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ABSTRACT

An ethnographic, multiple case study research design was used to examine factors that support a successful high school distance education program. Three classrooms from different high schools, each taking the same nationally-offered distance education physics course during the 1994-95 school year, participated. The course was delivered live, via satellite; telephones and a computer keypad system connected students with the remote teacher. The school calendar affected how frequently students missed regularly scheduled distance education classes, which in turn, affected facilitator roles in terms of planning for students to make up missed coursework. Facilitators' primary focus was on classroom management and climate, although they also engaged in planning and instructional tasks. Student aptitudes and other academic skills and experiences affected both students and facilitators. Facilitator background was a contributing factor to facilitator roles. The study supports the notion that the same factors that affect student learning in a traditional classroom also affect learning in a distance education class. It suggests that responsibility for the quality and outcome of high school distance education courses is shared among all components of the distance education system. In addition to course design and school factors, facilitator roles and performance requirements will be defined by the needs of the students. (AEF)

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Strategies to Support Effective Distance Education Programs in High Schools

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Elizabeth Kirby
State University of West Georgia

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Distance education, when defined as an educational transaction between a teacher at one location and a learner at another, dates back to late nineteenth century correspondence courses. Today, distance education encompasses a myriad of delivery systems that provide learning opportunities to students of all ages (Moore & Kearsley, 1996).

During the past decade, American high schools began using distance education technologies to offer students courses in math, science, and foreign languages. These courses often use a teacher-facilitator-student model where the teacher is at a remote site and the facilitator and students are in a local classroom (Tushnet, 1994). Teachers and students have always been major components in educational systems, but the classroom facilitator represents a new component. Little is known about roles classroom facilitators play in distance education, how they affect other components in the system, or how they affect system outcomes (Willis, 1992).

This study was initially designed to identify the roles of classroom facilitators and students within the context of a high school distance education course and to examine how those roles affected student performance. However, it quickly became apparent that the school itself played an important part in facilitator and student behavior and achievement. Consequently, the focus broadened to reflect a realm of variables, including school attributes, that influenced distance education in this setting.

Design of the Study

An ethnographic, multiple case study research design was used for this study. Three classrooms from different high schools (South High, Central High, and North High; all fictitious names), each taking the same nationally-offered distance education physics course during the 1994-95 school year, participated. The course was delivered live, via satellite. Telephones and a computer keypad system connected the students with the remote teacher. The course design included 30 minutes of instruction and other activities provided by the satellite teacher, as well as a 20 minute off-air period during which the facilitator and students did homework, discussed problems, or did labs.

The research methodology included extensive classroom observation, informal and formal interviews with classroom facilitators and students, and review and analysis of student work products, extant documents and resources used in the course. Each participating physics class was observed daily, in its entirety, for two consecutive units of study. A third unit of study was observed later.

A purposive sampling strategy designed to provide maximum variation was used to select the participants. Case variations included (a) facilitator certification (science, social studies, not certified); (b) facilitator distance education experience; (c) class size; (d) student demographics; (e) match of the school and distance education course bell schedules; (f) number of distance education courses offered by the school; and (g) location of the school (two adjacent states, three school districts).

An inductive constant comparative method was used to analyze the data. Collected data was transcribed, compiled, and coded; and then compared and contrasted to identify patterns and trends. Triangulation of data collection methods and data sources was used to enhance reliability and validity.

School Impact on Facilitator and Student Roles and Performance

The schools in this study had a major effect on facilitators and students. The high school calendar, including student and teacher holidays, and special events scheduling such as pep rallies and assemblies, affected how frequently students missed regularly scheduled distance education classes. This, in turn, affected facilitator roles in terms of planning for students to make up missed coursework. In one school the facilitator just taped the programs and made them available to students; in another the facilitator showed the makeup tape during a later class period; and one facilitator had to plan special make-up periods outside class. Ultimately, student performance was affected by

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when, and if, classes were made up. This was particularly evident at South High where many school holidays failed to match the distance schedule, and where a number of special activities disrupted class. In addition, over half the students at South High missed Physics once a week for an entire semester as a result of another class. As the South High facilitator noted, "If they miss it and don't make it up, and then they get lost, it's a wipeout. They never catch up." Thus, the school calendar had an adverse effect on student learning in Physics if it meant students missed classes to the degree they got behind and couldn't (or didn't) catch up.

The school bell schedule also influenced student and facilitator activities. At North High a German class was scheduled at 9:00 a.m., just as the off-air Physics time was beginning. As a result, physics students went to the media center for the off-air segment and the facilitator stayed with the German class. This meant the facilitator could not participate in off-air activities with the physics students, and she felt this was detrimental. During previous years, she had used off-air time to encourage students to call the physics teacher with questions they did not understand, or had encouraged them to do homework together on the chalkboard. These activities allowed students who were having difficulty to get help, either from the physics teacher over the phone, or from the other students in the class. However, the 1994-95 North High physics students were reluctant to call for help unless the facilitator actually placed the call. Due to the scheduling of the 9:00 German class she was rarely able to do this. Cooperative learning through mutual homework review rarely occurred because students spent the off-air time in the media center visiting with each other rather than doing homework. Students in the media center were also unable to complete lab or other activities that required equipment access. At South High School, the bell schedule split the off-air period into two short segments that tended to be wasted by the students.

School registration procedures had a major impact on North High students in terms of pre-requisite skills. The physics course required Algebra I and II as pre-requisites, but a number of North students were misadvised and did not meet these requirements. As a result, most of the North High students had poor math skills and were unable to perform the algebraic procedures required in Physics. Consequently, their acquisition of physics skills suffered. While the facilitator became aware of the algebra deficiencies early in the course, she had no way of providing remediation.

Prior school experiences also affected physics students. North High students had chosen Physics because they had heard, from other students or the chemistry teacher, that Physics was easier than the alternative chemistry course. So, their expectations were that the course and the work required of them would be easy. While a number of the students at South High perceived that Physics was a more difficult science, the amount and kind of work they were used to putting into courses did not prepare them for the effort required by the distance education physics course. Many lacked adequate study skills and discipline. The South High facilitator observed, "I think this class requires more from them than they've been used to. They need to look at Physics every night, and they just did not do it." And while all but one South High student met the algebra pre-requisites on paper, most believed that the skills they had acquired in their algebra courses at South High were inadequate.

School drop policies for distance education courses affected some students. None of the three schools allowed students to drop distance education courses after tuition had been paid to the course provider. But, several students at South and North High Schools indicated they would have dropped the course had that been an option, since they were doing so poorly in it. The drop policy may have indirectly contributed to a test retake policy at South High and a lenient homework policy at North. Both policies provided an opportunity for students to improve their grades although the policies did not support student learning. Generally, the South and North High facilitators did whatever they could to help students pass the course since they could not drop it.

Other school responsibilities affected the amount of time the South High facilitator actually spent in the classroom. The South High facilitator was a full-time school administrator, and as a result she periodically missed entire classes for several days or a week due to meetings, workshops, or other school obligations. Since she was an administrator, substitutes were not hired to take her place as facilitator. Missing classes meant she had to catch up on what had been covered in Physics, determine what students had or had not done, and then decide how students would make up missed activities. South High students indicated they did not stay on task and found it difficult to pay attention when the facilitator was away, so the regular learning process was always affected when she was absent.

Facilitator Roles and Their Effect on Student Performance

Facilitators at all three schools agreed that their primary focus was on classroom management and climate, but noted they engaged in some planning and instructional tasks. Logistical planning and implementation was a major responsibility. All three duplicated instructional materials developed by the physics teacher and distributed them to the students. They maintained lab equipment and prepared the classrooms for lab activities. They also decided how to accommodate deviations between the school and physics calendars and schedules. The physics teacher delivered most of the instruction, but occasionally the facilitators provided supplemental guidance or feedback as they

responded to student questions. The South and North facilitators occasionally answered informational questions directly, but more frequently directed students to other resources such as other students, teachers, or the telephone tutors. The Central High facilitator had a science background and was able to answer student questions personally. The North and South High facilitators played a major role in gaining (and maintaining) student attention during class and in eliciting student performance during labs and other in-class activities. The Central High students tended to stay on task, paying attention and participating independently, so the Central facilitator rarely had to assume these roles. All three facilitators implemented the testing and student assessment activities planned by the physics teacher. Each facilitator instituted grading policies and procedures that they thought were appropriate for their students and instructional setting. For instance, at South High students were allowed to retake tests for extra credit and at North High students were allowed to turn in homework long after it was due.

All three facilitators assumed classroom management roles, although the North and South facilitators were more active in this area. The Central facilitator reported, and classroom observation confirmed, that Central High students were mature and required little supervision, while the other two facilitators were continuously working to keep South and North High students on task, paying attention, behaving appropriately and participating in classroom activities. At South High the facilitator constantly reminded them to pay attention and participate in class, and she always coached or guided students through labs, since they tended to sit idly without her direct intervention. The students themselves reported that it was difficult to pay attention when the facilitator was absent. At North High the facilitator sat among the students to keep them on task, and frequently interrupted student conversations or other off-task behaviors to get them to focus on Physics. Students at North High indicated that they found it hard to concentrate and pay attention and relied on the facilitator to keep them on task.

The facilitators also assumed classroom climate roles, displaying positive attitudes toward the course and instructor, encouraging positive student attitudes and trying to build supporting relationships with and among the students. The South and North High School facilitators tried to work with other teachers in the school to make them aware of special needs or dispensations the physics students required as a result of their participation in the distance ed course. In all three schools, facilitators maintained indirect contact with parents through mid-term grading period progress reports. The North High facilitator also maintained direct personal contact with several parents who were concerned about their child's performance in Physics. Students at all three schools attributed their positive attitude toward the class to the facilitators enthusiasm.

Other Factors that Affected Facilitator and Student Roles and Performance

Individual student aptitudes and other academic skills and experiences also affected the physics students and facilitators. At Central High, many of the students had taken Physics because they were interested in the subject. The facilitator observed that most of these students were gifted, and that all had a great deal of initiative and self-responsibility. The Central students stayed focused and attentive during class, rarely had trouble grasping concepts, and found the pacing of the physics class to be satisfactory. They had good study habits, recognized the importance of solving homework problems rather than copying answers, and had good test-taking skills. They also took responsibility for making up classes they missed by taking tapes home or viewing them before or after school. Consequently, their academic performance was good, and the facilitator rarely had to intervene or provide direct support for class activities.

This contrasted with the students at South and North High, most of whom were average students with average academic backgrounds. They had more difficulty staying on task and paying attention, inadequately utilized instructional resources, occasionally found the pacing of the course too fast, frequently copied homework answers just to get credit, and employed educated guess strategies when taking tests. They tended to accept less responsibility for their own learning, relying on the facilitator to help them focus or to make sure they did their homework or labs. While some of the students at North High reviewed tapes for classes they missed, only one South High student routinely made up missed classes without direct facilitator intervention. Facilitators at these two schools provided a great deal of support and guidance during class to help students to pay attention and participate in class activities, to actively help them complete assignments such as labs, to make sure they turned in homework, and to encourage students to utilize supporting outside resources such as the tutors. While some of the South and North High students performed satisfactorily on tests suggesting that they had mastered physics skills covered in class, a number of students at these schools relied on homework credit and good lab scores to pass the course.

Facilitator backgrounds also contributed to facilitator roles. Since the Central facilitator had a science degree, she could usually provide immediate answers to any content-related questions students might have. The other two facilitators might be able to answer some physics questions — based on things they had learned in previous years — but their more frequent information/feedback role was to direct and encourage students to use other resources to find answers. Some of the South and North High students indicated that they called the tutors and found them helpful, but many were reluctant to call or found it difficult

to communicate with the tutors. And, since a student's ability to clarify and resolve conceptual or procedural questions ultimately affects student learning, the Central High students' physics performance was influenced to some degree by their facilitator's ability to answer their (infrequent) questions. Of course, Central High students also turned to each other for help. At South and North High Schools, the students had frequent questions; and whether their facilitators could answer the questions, or direct them to an alternative information source (and get the students to use the resource), also affected student learning. Unfortunately, the South and North High School students rarely took advantage of these resources.

Implications for Theory and Practice

This study supports the position of theorists such as Shale (1990) and Garrison (1989) who contend that distance education, while morphologically different, does not constitute a distinct educational process. The same factors that affect student learning in a traditional classroom also affect student learning in a high school distance education class; that is, learner skills, knowledge, beliefs, attitudes, and course/lesson design.

The study also suggests that responsibility for the quality and outcome of high school distance education courses is shared among all components of the distance education system; the course provider, the high school utilizing the program, and the local facilitators and students who are participating in the course. Specifically, the course provider, instructor, and designers, are responsible for providing effective, efficient instruction in the form of courses that maximize student achievement. This includes designing, developing and providing instruction, materials and activities, that, when utilized as prescribed, result in student mastery of clearly defined objectives. This also includes clear specification of desired student outcomes, required student entry skills (perhaps a specific pre-requisite skills test rather than designation of required pre-requisite courses), instructional materials and activities, a prescribed plan for course implementation, and other student support as required.

The responsibilities of the local school include assuring students possess the pre-requisite entry skills, and supporting utilization of the course as designed by the course provider. This includes fully implementing the complete range of instructional activities in the sequence designed by the course provider. Or, if the school can not implement the course exactly as designed, it must assure that other components in the system can compensate for the instructional elements that were not implemented as designed. Specific school responsibilities include registering (and pre-screening) students, establishing school calendars, bell schedules, and selecting and establishing facilitator availability. These are all factors which contribute, directly or indirectly, to facilitator and student roles and performance. Since two of the schools participating in this study deviated to some degree from the course provider's implementation recommendations (i.e., student pre-requisites, off-air activity block scheduling, and facilitator availability), this may provide evidence that one of the challenges high school distance education course providers will face is getting schools to utilize courses as designed. This is similar to the problems instructional designers have traditionally faced in getting schools to use courseware as designed (Burkman, 1987).

Finally, the study suggests that in addition to course design and school factors, facilitator roles and performance requirements will be defined by the needs of the students themselves. Students who are high on the motivation and willingness continuum but low on the ability continuum may require facilitator support in the form of instructional assistance (if the facilitator has subject area expertise) or encouragement and assistance in using telephone tutor or other external support (if the facilitator does not have content area expertise); whereas students who are high on ability but low on motivation and willingness will require facilitator support to help them stay on task and participate in class activities (Hersey, Blanchard, & Johnson, 1996).

References

Burkman, E. (1987). Factors affecting utilization. In R. M. Gagné (Ed.), *Instructional technology: Foundations* (pp. 429-455). Hillsdale, NJ: Erlbaum.

Garrison, D. R. (1989). *Understanding distance education: A framework for the future*. London: Routledge.

Hersey, P., Blanchard, K., & Johnson, D. (1996). *Management of organizational behavior: Utilizing human resources (7h ed.)*. Paramus, NJ: Prentice Hall.

Moore, M. & Kearsley, G. (1996). *Distance education: A systems view*. New York: Wadsworth.

Shale, D. (1990). Toward a reconceptualization of distance education. In M. Moore (Ed.), *Contemporary issues in American distance education* (pp. 333 - 343). New York: Pergamon.

Tushnet, N. (1994). *The Star Schools distance-learning program*. Washington, DC: Office of Educational Research, U.S. Department of Education.

Willis, B. (1992). Making distance learning effective: Key roles and responsibilities. *Educational Technology*, 32(6), 35-37.

Elizabeth Kirby is Assistant Professor of Research, Media and Technology in the College of Education, State University of West Georgia, Carrollton, GA 30118. Office phone 770-836-44426. E-mail: ekirby@westga.edu.